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CLAIMS

10   1. A method for adaptive setting or reservation of channelization codes and/or power for downlink channel in a communication network, using parameters (SF_{min}, $P_{txDSCHallowed}$) for minimum allowed Spreading Factor, SF, and/or allowed power level, the parameters being set depending on the
15 traffic load, the total cell load and/or the availability of channelization codes, wherein three kinds of measurements are performed:

1. Average transmitted power of a physical shared downlink channel, PDSCH,
20   2. Relative activity factor, A, of the PDSCH, and

3. Weighted code blocking rate, B,
and adaptive adjustment of root spreading factor and power is based on these three kinds of measurements.

25   2. The method of claim 1, wherein a criteria for adjustment of the allowed power level is:

if A is smaller than TH_{A1}, and $P_{txDSCHest}$ is smaller than ($P_{txPDSCHallowed}$ - X), then decrease the reserved power, preferably by X or a fraction thereof,
30 A representing an activity factor of the downlink channel, TH_{A1} a threshold parameter, $P_{txDSCHest}$ the estimated power of the downlink channel, $P_{txPDSCHallowed}$ the power allowed for the downlink channel, and X a certain set value.

3. The method of claim 1, or 2, wherein a criteria for adjustment of the allowed power level is:

if A is greater than TH_{A2}, and $P_{txDSCHest}$ is greater than $(P_{txPDSCHallowed} - X)$, then increase the allowed power by X, A representing an activity factor of the downlink channel, TH_{A2} a threshold parameter, $P_{txDSCHest}$ the estimated power of the downlink channel, $P_{txPDSCHallowed}$ the power allowed for the downlink channel, and X a certain set value.

4. The method of any one of the preceding claims, wherein a criteria for adjustment of the minimum spreading factor, SF_{min}, is:

if B is greater than TH_B, and A is greater than TH_{A2}, then decrease SF_{min} (allow higher bit rates), B representing a weighted code-blocking rate, A an activity factor of the downlink channel, and TH_B and TH_{A2} threshold values.

5. The method of any one of the preceding claims, wherein a criteria for adjustment of the minimum spreading factor, SF_{min}, is:

if $B = 0$ (zero), and L_{code} is greater than TH_{code}, then increase SF_{min} (maximum bit rate is decreased), B representing a weighted code-blocking rate, L_{code} a current load of a code tree, and TH_{code} a threshold parameter.

6. The method of any one of the preceding claims, wherein a method for channelization code allocation comprises a step of reserving a new root code with a given spreading factor (Spreading Factor), and a subsequent step of deciding where in a code tree this reservation is to be made.

7. The method of claim 6, wherein codes for downlink

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basically are assigned in the code tree starting from a certain limb of the code tree, and codes are assigned for users primarily in another limb of the code tree.

8. The method of claim 6 or 7, wherein a default capacity is allocated to a territory, e.g. DSCH territory to be used by HS-DSCH and DSCH, when the total code tree load allows this, wherein spreading factor SF is only increased if the code tree is highly loaded.

9. The method of any one of the preceding claims, wherein total cell load is measured by power.

10. A system for adaptive setting or reservation of channelization codes and/or power for downlink channel in a communication network, using parameters ($P_{txDSCHallowed}$, SF_{min}) for minimum allowed Spreading Factor, SF, and/or allowed power level, the parameters being set depending on the traffic load, the total cell load and/or the availability of channelization codes,
wherein the system is adapted to perform three kinds of measurements:
1. Average transmitted power of a physical shared downlink channel, PDSCH,
2. Relative activity factor, A, of the PDSCH, and
3. Weighted code blocking rate, B,
and to base adaptive adjustment of root spreading factor and power on these three kinds of measurements.

11. The system of claim 10, wherein a criteria for adjustment of the allowed power level is:
if A is smaller than TH_{A1}, and $P_{txDSCHest}$ is smaller than ($P_{txPDSCHallowed}$ - X), then decrease the reserved power,

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preferably by X or a fraction thereof,

A *representing* an activity factor of the downlink channel, TH_{A1} a threshold parameter, $P_{txDSCHest}$ the estimated power of the downlink channel, $P_{txPDSCHallowed}$ the power allowed for the

5   downlink channel, and X a certain set value.

12. The system of claim 10, wherein a criteria for adjustment of the allowed power level is:

if A is greater than TH_{A2}, and $P_{txDSCHest}$ is greater

10   than ($P_{txPDSCHallowed}$ − X), then increase the allowed power by X,
A representing an activity factor of the downlink channel, TH_{A2} a threshold parameter, $P_{txDSCHest}$ the estimated power of the downlink channel, $P_{txPDSCHallowed}$ the power allowed for the downlink channel, and X a certain set value.

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13. The system of any one of the preceding system claims, wherein a criteria for adjustment of the minimum spreading factor, SF_{min} , is:

if B is greater than TH_B, and A is greater than

20   TH_{A2}, then decrease SF_{min} (allow higher bit rates),
B representing a weighted code-blocking rate, A an activity factor of the downlink channel, and TH_B and TH_{A2} threshold values.

25   14. The system of any one of the preceding system claims, wherein a criteria for adjustment of the minimum spreading factor, SF_{min} , is:

if B = 0 (zero), and L_{code} is greater than TH_{code}, then increase SF_{min} (maximum bit rate is decreased),

30   B representing a weighted code-blocking rate, L_{code} a current load of a code tree, and TH_{code} a threshold parameter.

15. The system of any one of the preceding system

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claims, wherein a method for channelization code allocation comprises a step of reserving a new root code with a given spreading factor SF, and a subsequent step of deciding where in a code tree this reservation is to be made.

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      16. The system of claim 15, wherein codes for downlink basically are assigned in the code tree starting from a certain limb of the code tree, and codes are assigned for users primarily in another limb of the code tree.

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      17. The system of claim 15 or 16, wherein a default capacity is allocated to a territory, e.g. DSCH territory to be used by HS-DSCH and DSCH, when the total code tree load allows this, wherein spreading factor SF is only increased if

15   the code tree is highly loaded.

      18. The system of any one of the preceding system claims, being adapted to measure the total cell load by measuring power.

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      19. A network entity, preferably to be used in a method as defined in any one of the preceding method claims, or in a system as defined in any one of the preceding system claims, for adaptive setting or reservation of channelization

25   codes and/or power for downlink channel in a communication network, in particular for downlink shared channel, DSCH, and high speed downlink shared channel, HS-DSCH, using parameters ($P_{txDSCHallowed}$, SF_{min}) for minimum allowed Spreading Factor, SF, and/or allowed power level, the parameters being set

30   depending on the traffic load, the total cell load and/or the availability of channelization codes,

      wherein the entity is adapted to perform three kinds of measurements:

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1. Average transmitted power of a physical shared
downlink channel, PDSCH,

   2. Relative activity factor, A, of the PDSCH, and

   3. Weighted code blocking rate, B,

5 and to base adaptive adjustment of root spreading factor and
power on these three kinds of measurements.

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